

CLAIMS

What is claimed is:

1. A method of coating an implantable device comprising:
 - 5 applying a composition including a solvent to an implantable device;
 - 10 directing a gas onto the implantable device, wherein if the solvent has a vapor pressure greater than 17.54 Torr at ambient temperature the temperature of the gas is adjusted to inhibit the evaporation of the solvent, and if the solvent has a vapor pressure of less than 17.54 Torr at ambient temperature the temperature of the gas is adjusted to induce the evaporation of the solvent.
2. The method of Claim 1, wherein the implantable device is a radially expandable stent.
3. The method of Claim 1, wherein the composition is applied simultaneous with the directing of the gas.
- 15 4. The method of Claim 1, wherein the composition includes a polymer dissolved in the solvent and optionally an active agent added thereto.
5. The method of Claim 4, wherein the polymer is ethylene vinyl alcohol copolymer and the solvent includes dimethylacetamide.
6. The method of Claim 4, wherein the active agent is actinomycin D, paclitaxel, docetaxel, or rapamycin.
- 20 7. The method of Claim 1, additionally comprising repeating the acts of applying and directing to form a coating of a desirable thickness or weight.

8. An implantable device comprising a coating wherein the coating is made in accordance with the method of Claim 1.

9. The method of Claim 1, wherein the act of applying comprises using a nozzle to spray the composition onto the implantable device, wherein the distance 5 from the tip of the nozzle to the outer surface of the implantable device is from about 0.5 cm to about 5.0 cm.

10. The method of Claim 9, wherein the act of spraying is performed at a flow rate of about 0.01 mg/second to about 1.0 mg/second.

11. The method of Claim 1, wherein the act of applying comprises spraying 10 the composition onto the implantable device.

12. The method of Claim 11, wherein the direction of the flow of the gas is substantially in the same direction as the composition spray.

13. The method of Claim 11, wherein the direction of the flow of gas is at an angle relative to the direction of the composition spray.

15 14. The method of Claim 11, wherein the direction of the flow of gas is substantially opposite to the direction of the composition spray.

15. The method of Claim 1, wherein the act of directing the gas is performed at a flow rate of about 300 feet/minute to about 10,000 feet/minute.

16. The method of Claim 1, wherein the composition includes a radiopaque 20 element or a radioactive isotope.

17. The method of Claim 1, further comprising rotating the implantable device about an axis of the implantable device.

18. The method of Claim 1, further comprising moving the implantable device in a linear direction along an axis of the implantable device.

19. The method of Claim 1, wherein the implantable device is a stent and the stent is at least partially expanded during the acts of applying and directing.

5 20. The method of Claim 1, wherein the gas is an inert gas.

21. The method of Claim 1, wherein the gas is selected from a group of argon, nitrogen and air.

22. The method of Claim 1, further comprising changing the temperature of the implantable device to a temperature other than ambient temperature.

10 23. A method of coating an implantable device comprising:

applying a composition including a solvent to an implantable device;

and

directing a gas onto the implantable device simultaneous with application of the composition to either induce or inhibit evaporation of the solvent

15. from the composition to form a coating on the implantable device, wherein if the solvent is non-volatile the temperature of the gas is adjusted to induce the evaporation of the solvent, and if the solvent is volatile the temperature of the gas is adjusted to inhibit the evaporation of the solvent.

24. The method of Claim 23, wherein if the solvent is volatile, the 20 temperature of the gas is significantly less than the boiling temperature of the solvent.

25. The method of Claim 23, wherein the temperature of the gas is about 25°C to about 200°C for the non-volatile solvent and is less than 25°C for the volatile solvent.

26. The method of Claim 23, further comprising, if the solvent is non-volatile increasing the temperature of the composition to a temperature above ambient temperature prior to application of the composition onto the implantable device, or alternatively, if the solvent is volatile decreasing the temperature of the composition to a temperature below ambient temperature prior to application of the composition onto the implantable device.

10 27. A system for spraying a coating onto an implantable device comprising:

a sprayer for applying a composition including a solvent on an implantable device; and

15 a blower for directing a gas onto the implantable device, wherein if the solvent has a vapor pressure greater than 17.54 Torr at ambient temperature the temperature of the gas is adjusted to inhibit the evaporation of the solvent, and if the solvent has a vapor pressure of less than 17.54 Torr at ambient temperature the temperature of the gas is adjusted to induce the evaporation of the solvent.

28. The system of Claim 27, wherein the implantable device is a radially expandable stent.

20 29. The system of Claim 27, wherein the composition includes a polymer dissolved in the solvent and optionally an active agent added thereto.

30. The system of Claim 27, further comprising a support structure for rotating the implantable device about an axis of the implantable device.

31. The system of Claim 27, wherein the sprayer includes a temperature controller for adjusting the temperature of the composition.

5 32. The system of Claim 27, further comprising a CPU for controlling the operation of the sprayer and blower.

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